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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/812,545	MELICK ET AL.	
	Examiner	Art Unit	
	M. R. Sedighian	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1,3,4,21-23,25,38-42,45-47,49,50 and 58-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,21-23,25,38-42,45-47,49,50 and 58-64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. This communication is responsive to applicant's 6/21/07 amendments and remarks. The amendments have been entered. Claims 1, 3-4, 21-23, 25, 38-42, 45-47, 49-50, and 58-64 are now pending.

2. Claims 1, 3-4, 21-23, 25, 38-42, 45-46, and 58-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

The term "characteristics" in claims 1, 21, 38, and 58 is used by the claim to mean "different pulses and/or different pulse shapes and/or different pulse waveforms", while the accepted meaning is "waveforms." The term is indefinite because the specification does not clearly redefine the term. One of the ordinary skill in the art recognizes that the phrase "pulse characteristic" refers to three characteristics of a pulse such as: Amplitude, Width, and Frequency.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 47 and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Wingard (US Patent No: 6,295,318).

Regarding claim 47, Wingard teaches a method of transmitting data with electronic pulses (200, 210, fig. 2), comprising: receiving bits of data from a memory unit (204, fig. 2); transforming a plurality of the bits of data into a single transmission pulse of electrical energy (col. 1, lines 60-65), the single transmission pulse having a pulse position selected from a set of ten or more predetermined pulse positions (PPM encoded output signal 402, fig. 4 and PPM encoded output signal 904, figs. 9A, 9B), one of which is corresponding to the bits of data (col. 6, lines 31-45, col. 11, lines 30-35); and transmitting (212, fig. 2) the single transmission pulse over a transmission medium (216, fig. 2) without using a carrier signal to transmit the single transmission pulse (col. 8, lines 66-67, col. 9, lines 1-20).

Regarding claim 50, Wingard teaches receiving (220, fig. 2) the single transmission pulse from the transmission medium (216, fig. 2), and transforming the single transmission pulse into a plurality of bits of data corresponding to the specific characteristics of the transmission pulse (col. 9, lines 20-30).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 4, 21, 23, 38-40, 42, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US Patent No: 4,980,884).

Regarding claims 1, 21, and 38, as it is understood in view of the above 112 problem, Chang teaches a method of transmitting data using pulse modulation (col. 1, lines 1-10), comprising: receiving bits of data from a memory unit (col. 6, lines 9-19 and 70, fig. 5); transforming a plurality of the bits of data into a single transmission pulse (col. 2, lines 60-68), the single transmission pulse having a pulse waveform selected from a set of predetermined pulse waveforms (col. 3, lines 7-11), one of which is corresponding to the bits of data (col. 3, lines 10-11); and transmitting (T/R 14, fig. 1) the single transmission pulse over a guided medium (16, fig. 1) to a receiver (T/R 18, fig. 1) using pulse modulation and without using a carrier signal to transmit the single transmission pulse (col. 2, lines 65-69); wherein the set of pulse waveforms (P1, P2, P3, P4, figs. 2, 3) correspond to pulse durations (fig. 3, 4, and col. 3, line 11), and wherein the pulse durations include separate pulse durations (pulses of lengths L, 2L, 3L, 4L), each of the separate pulse durations corresponding to one of integers (col. 3, lines 2-3, 10-11). Chang differs from the claimed invention in that Chang does not specifically disclose a set of at least ten predetermined pulse waveforms, wherein the set of ten pulse waveforms correspond to pulse durations, and wherein the pulse durations include ten separate pulse durations, each corresponding to one of integers 0 through 9. Chang discloses transmitting a single pulse to represent two bits of data (col. 2, line 69) and further discloses three or more bits of data can be represented (col. 3, lines 2-3). Chang further discloses generating pulses of different lengths corresponding to bits of data (col. 3, lines 10-11). Accordingly, it would have

been obvious to a person of ordinary skill in the art at the time of invention that the data pulse generation and transmission system of Chang can generate and transmit ten pulses of different durations, each corresponding to integers 0 through 9, to transmit a plurality of different data signals between a plurality of remote stations.

Regarding claim 4, Chang further teaches receiving (T/R 18, fig. 1) the single transmission pulse from the transmission medium (16, fig. 1) at the receiver (T/R 18, fig. 1), and transforming the single transmission pulse into the plurality of a digital bit of data corresponding to the characteristics of the transmission pulse (col. 3, lines 11-15, the received byte are decoded, see fig. 4).

Regarding claim 23, Chang teaches the transmission pulse is an electronic pulse (col. 6, lines 9-20 and fig. 5) that is transmitted over a guided media (16, fig. 1).

Regarding claim 39, Chang teaches the transmission pulse characteristics corresponding to the bits of data (col. 3, lines 2-3, 7-11) is the transmission pulses position in time (col. 4, lines 15-20 and P1, P2, P3, P4, fig. 3).

Regarding claim 40, Chang teaches the transmission pulse characteristic corresponding to the bits of data is the duration between transmission pulses (col. 4, lines 10-20 and P1, P2, P3, P4, fig. 3).

Regarding claim 42, Chang teaches the transmission pulse characteristic corresponding to the bits of data is the duration of the transmission pulses (col. 4, lines 15-17).

Regarding claim 46, Chang teaches receiving (T/R 18, fig. 1) the single transmission pulse (col. 2, line 68) from the transmission medium (16, fig. 1), and transforming the single transmission pulse into a plurality of digital bits of data corresponding to the specific

characteristics of the transmission pulse (col. 3, lines 11-15, the received byte are decoded, see fig. 4).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US Patent No: 4,980,884) in view of Campana, Jr. (US Patent No: 6,98,783 B1).

Regarding claim 3, Chang differs from the claimed invention in that Chang does not specifically disclose the data is in the form of universal character encoding. However, it is well known to transmit characters as signal transmission pulses. For example, Campana discloses the transmission of information in a series of characters by using pulse width modulated signals (col. 51, lines 9-14). As it is taught by Campana and as it is well known, it would have been obvious to a person of ordinary skill in the art at the time of invention that a data transmission system such as the one of Chang can transmit data that is in the form of universal character, as signal transmission pulses to transmit different characters or texts.

8. Claims 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US Patent No: 4,980,884) in view of Rybicki et al. (US Patent Application Publication No: 2001/0055353 A1).

Regarding claims 22 and 25, Chang differs from the claimed invention in that Chang does not disclose the transmitting pulse is a pulse of light and the transmission is over a fiber optic cable. However, it is well know to transmit data pulse signals optically and through an optical fiber. For example, Rybicki teaches the transmission of modulated pulses (pulses 26 and modulated pulses 28 in fig. 1) over a fiber optic cable (page 3, paragraph 0049). As it is well

known and as it is taught by Rybicki, it would have been obvious to a person of ordinary skill in the art at the time of invention to transmit the generated signal pulses of Chang optically over an optical fiber to provide a method of fast data transmission system between the central unit and the remote stations.

9. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wingard (US Patent No: 6,295,318) in view of Fensch et al. (US patent No: 6,307,864 B1).

Regarding claim 49, Wingard differs from the claimed invention in that Wingard does not specifically disclose data is in the form of universal character encoding, and wherein the plurality of bits represent a digit associated with a universal character. Fensch teaches a coding step that associates a predetermined symbol with a sequence of digital information, and a shaping step that associates an elementary pulse of predetermined duration with each coded symbol (col. 1, lines 13-20). Fensch also teaches codes can be used for the transmission of digital information within a digital network of universal character (col. 1, lines 25-30). As it is taught by Fensch and as it is well known, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a method of universal character encoding for encoding the data or characters or texts in the communication system of Wingard to transmit different forms of information and to increase the transmission capacity of the system.

10. Claims 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dress, Jr. et al. (US Patent No: 6,603,818 B1).

Regarding claim 58, as it is understood in view of the above 112 problem, Dress teaches a method of transmitting data (col. 1, lines 15-20, 50-53), comprising: representing a symbol (col. 7, line 21, multiple bits per symbol) comprising at least two bits of data (col. 1, lines 50-58) by varying a pulse waveform of a single time modulated (col. 1, lines 55-57, multiple bits per pulse) ultrawideband radio-frequency pulse (col. 11, lines 41-48) based on the value of the at least two bits of data (col. 7, lines 22-45), transmitting the time modulated ultrawideband pulse over a guided medium (col. 2, lines 10-13, note that the generated signal pulses are transmitted over a guided medium to the antenna 1012, as it is shown in fig. 10) from a transmitter (1012, fig. 10) to a receiver (1101, fig. 11). Dress differs from the claimed invention in that Dress does not specifically disclose the pulse waveform is selected to be one of a set of at least ten pulse waveforms. However, Dress discloses the invention permit longer generating pulse widths (col. 3, lines 64-65), and generation of different pulses shapes/occupying different frequency bands (col. 7, lines 22-30 and fig. 6). Dress also discloses transmitting several pulses, each with a different derivative order (col. 7, lines 33-35). Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of invention that the data pulse signal generation and transmission system of Dress can generate pulses of different characteristics, or pulses of ten pulse characteristics, such that different data signals can be transmitted and received.

Regarding claim 59, Dress teaches each of the pulse waveform within the set is a pulse duration (col. 3, lines 64-65 and fig. 6).

Regarding claim 60, Dress teaches each of the pulse waveform within the set is a pulse position (col. 15, lines 15-20).

Regarding claim 61, Dress teaches each of the pulse waveform within the set is a pulse spacing (col. 3, lines 64-65 and fig. 6).

11. Claims 62-64, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dress, Jr. et al. (US Patent No: 6,603,818 B1) in view of Keller et al. (US Patent No: 4,931,751).

Regarding claim 62, Dress discloses a method of transmitting data (col. 1, lines 15-20, 50-53), comprising: representing a symbol (col. 7, line 21, multiple bits per symbol) encoding a plurality of bits of data (col. 1, lines 50-58) using a pulse characteristic of a single (col. 1, lines 55-57, multiple bits per pulse) time modulated ultrawideband radio-frequency pulse (col. 11, lines 41-48) over a guided medium (col. 2, lines 10-13, note that the generated signal pulses are transmitted over the guided medium to the antenna 1012, shown in fig. 10) from a transmitter (1012, fig. 10) to a receiver (1101, fig. 11). Dress differs from the claimed invention in that Dress does not disclose encoding the plurality of bits into a base 10 representation, such that the single time modulated ultrawideband pulse corresponds to a digit between 0 and 9. Dress discloses a method of pulse transmission for communicating multiple bits per pulse (col. 1, lines 56-57). Dress further discloses a composite pulse that represents a binary code (col. 2, lines 57-59 and fig. 8). Keller discloses an apparatus and method for producing pulse width modulated signals from digital information (col. 1, lines 8-12), wherein a plurality of bits of data are encoded into a base 10 representation, such that a single time modulated pulse corresponding to a digit between 0 and 9 can be produced (col. 1, lines 52-56 and fig. 2). Therefore, it would have

been obvious to a person of ordinary skill in the art at the time of invention to incorporate a method of encoding of the data bits, such as the one of Keller, for encoding the data bits in the transmission system of Dress to encode and transmit different data or texts.

Regarding claim 63, Dress discloses the guided medium is an electrically conductive guided medium (col. 2, lines 11-12).

Regarding claim 64, Dress discloses the pulse characteristic is a pulse duration (col. 3, lines 64-65 and fig. 6).

12. Claims 1, 4, 21-23, 25, 38-42, 46-47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rybicki et al. (US Patent Application Publication No: 2001/0055353 A1).

Regarding claims 1, 21, 38, and 47, as it is understood in view of the above 112 problem, Rybicki teaches a method of transmitting data using pulse modulation (page 1, paragraph 0001 and fig. 1), comprising: receiving bits of data from a memory unit (page 9, paragraph 0089 and data receiver 14 and set of bits 24 in figs. 1, 15); transforming the bits of data into a single transmission pulse (page 3, paragraph 0049, page 4, paragraph 0059, the set of bits of data transmitted as a single pulse, shown in fig. 1), the single transmission pulse (26, fig. 1) having a pulse waveform selected from a set of a plurality of different predetermined pulse waveforms (for example, different pulse waveforms that are shown in figs. 4, 5,6), one of which is corresponding to the bits of data (page 9, paragraph 0087); and transmitting (10, 20, fig. 1) the single transmission pulse (28, fig. 1) over a guided medium (32, fig. 1) to a receiver (38, 46, fig. 1) using pulse modulation without using a carrier signal to transmit the single transmission pulse

(page 3, paragraph 0049); wherein the set of plurality of pulse waveforms (for example ten of the pulse waveforms shown in figs. 4, 5, 6) correspond to pulse durations (note that pulse durations are different for different sets of bits, for example, different pulse durations for the set of bits 0011 and 0100, shown in fig. 4 and different pulse durations for the set of bits 1100 and 1111, shown in fig. 5), each of the separate pulse durations corresponding to one of integers 0 through 9 (page 9, paragraph 0087, note that the width of the pulses corresponds to the bits of data, or to the numbers 0 through 9, as it is shown in figs. 4, 5, 9). Rybicki differs from the claimed invention in that Rybicki does not specifically disclose the pulse durations include ten separate pulse durations each corresponding to one of integers 0 through 9. However, Rybicki discloses a pulse having a first pulse width when the set of bits is in a first range, a second pulse width when the set of bits is in a second range, and a thirds pulse width when the set of bits is in a third range (page 9, paragraph 0087 and 234, fig. 13, note that pulses of different widths, representing integers 0 through 9, shown in figs. 4, 5, and 9). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention that a pulse width modulation system and method such as the one of Rybicki can generate and transmit ten separate pulses of different durations, each representing different set of bits respectively, corresponding to one of integers 0 through 9 (such as the ones shown in figs. 4, 5, 9) to provide a high data rate transmission system (Rybicki, page 2, paragraph 0047). As to claim 47, Rybicki also discloses a method of transmitting data with electronic pulses (page 2, paragraph 0047 and 26, fig. 1), comprising: receiving bits of data from a memory unit (page 9, paragraph 0089 and data receiver 14 and set of bits 24 in figs. 1, 15); transforming the bits of data into a single transmission pulse (26, fig. 1) of electrical energy (page 3, paragraph 0049, page 4, paragraph 0059, the set of bits of data

transmitted as a single pulse, shown in fig. 1), the single transmission pulse having a pulse position (page 3, paragraph 0049) selected from a set of a plurality of predetermined pulse positions (for example the pulse positions that are shown in figs. 4, 5, 9), one of which is corresponding to the bits of data (page 8, paragraph 0076 and fig. 9); and transmitting the single transmission pulse over a transmission medium without using a carrier signal to transmit the single transmission pulse (page 3, paragraph 0049).

Regarding claim 4, Rybicki further teaches receiving (46, fig. 1) the single transmission pulse from the transmission medium (path 32, fig. 1) at the receiver (38, fig. 1), and transforming the single transmission pulse into the plurality of a bit of data corresponding to the characteristics of the transmission pulse (page 3, paragraph 0050).

Regarding claims 22 and 25, Rybicki teaches the transmission pulse is a pulse of light (20, fig. 1) that is transmitted over a fiber optic cable (page 3, paragraph 0049).

Regarding claim 23, Rybicki teaches the transmission pulse is an electronic pulse (pulses 26, fig. 1) that is transmitted over a guided media (the guided medium between modulation circuit 16 and amplifier 18, fig. 1).

Regarding claim 39, Rybicki teaches the transmission pulse characteristics corresponding to the bits of data is the transmission pulses position in time (page 8, paragraph 0076).

Regarding claim 40, Rybicki teaches the transmission pulse characteristic corresponding to the bits of data is the duration between transmission pulses (page 8, paragraph 0074).

Regarding claim 41, Rybicki teaches the transmission pulse characteristic corresponding to the bits of data is the amplitude of the transmission pulse (page 3, paragraph 0049).

Regarding claim 42, Rybicki teaches the transmission pulse characteristic corresponding to the bits of data is the duration of the transmission pulses (page 9, paragraph 0087).

Regarding claims 46 and 50, Rybicki further teaches receiving (46, fig. 1) the single transmission pulse from the transmission medium (path 32, fig. 1), and transforming the single transmission pulse into a plurality of digital bits of data corresponding to the specific characteristics of the transmission pulse (page 3, paragraph 0050).

13. Claims 45 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rybicki et al. (US Patent Application Publication No: 2001/0055353 A1) in view of Campana, Jr. (US Patent No: 6,198,783 B1).

Regarding claims 45 and 49, Rybicki differs from the claimed invention in that Rybicki does not specifically disclose the data is in the form of universal character encoding and wherein the plurality of bits represent a digit associated with a universal character. However, it is well known to use universal character encoding standards for representing characters, text, or data. For example, Campana teaches transmission of information such as characters using pulse width modulation and universal character encoding (col. 46, lines 4-7, col. 51, lines 8-14). As it is taught by Campana, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a method of universal character encoding in the data transmission

system of Rybicki to encode different characters, or bits representing a digit associated with a universal character, to transmit different forms of data or texts.

14. Claims 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle et al. (US Patent No: 6,700,939).

Regarding claim 58, as it is understood in view of the above 112 problem, McCorkle teaches a method of transmitting data (col. 2, lines 51-65), comprising: representing a symbol (col. 2, lines 54-55) comprising at least two bits of data (col. 9, lines 59-62, col. 10, lines 53-56) by varying a pulse waveform of a single time modulated ultrawideband radio-frequency pulse (col. 5, lines 30-45, note that the signal pulse transmitting in line 108 is a single time modulated ultrawideband radio-frequency pulse) based on the value of the at least two bits of data (col. 5, lines 40-44, col. 9, lines 37-40), transmitting the time modulated ultrawideband pulse (col. 9, lines 59-62, col. 10, lines 53-59) over a guided medium (125, 127, fig. 1) from a transmitter (128, fig. 1) to a receiver (col. 3, lines 22-25, col. 18, lines 40-55 and fig. 2A). McCorkle differs from the claimed invention in that McCorkle does not specifically disclose the pulse waveform is selected to be one of a set of at least ten pulse waveforms based on the value of the at least two bits of data. However, McCorkle discloses generating first short impulse wavelets of a first predetermined shape, and generating second short impulse wavelets of a second predetermined shape (col. 15, lines 7-10). McCorkle further discloses generating a plurality of time offset replicas of respective impulse wavelets (col. 15, lines 35-37). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention that a pulse waveform generation system such as the one of McCorkle can generate ten different pulse waveforms,

based on the value of the bits of data to transmit a plurality of different data signals and increasing the transmission capacity of the system.

Regarding claim 59, McCorkle teaches each of the pulse waveform within the set is a pulse duration (col. 5, lines 42-44).

Regarding claim 60, McCorkle teaches each of the pulse waveform within the set is a pulse position (col. 4, lines 52-55, col. 9, lines 55-57).

Regarding claim 61, McCorkle teaches each of the pulse waveform within the set is a pulse spacing (col. 9, lines 37-40).

15. Applicant's arguments filed 6/21/07 with respect to references Rybicki and McCorkle have been fully considered but they are not persuasive.

Applicant properly indicated that the term "characteristic" may also encompass other characteristic including pulse shape. However, applicant fails to recognize that the disclosure is about "using pulse modulation", as recited in claim 1. That is why as recited in last office action, examiner reiterated that one of the ordinary skill in the art recognizes that the phrase "pulse characteristic" refers to three characteristics of a pulse such as amplitude, width, and frequency, when referring to pulse modulation in the art. Regarding reference of Rybicki, remark states one skilled in the art would not be lead to represent bits in base 10 for transmission purposes, as such a representation would appear to be merely wasteful of resources in comparison to using a 2^n base where n is an integer, and Rybicki teaches away from representing bits in base 10 because Rybicki uses time chips with time slots. However, in response to such argument that Rybicki fail to show certain features of applicant's invention, it is noted that the features upon which

applicant relies (i.e., representing bits in base 10 for transmission purposes, or using a 2^n base) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Rybicki disclose a pulse modulation transmission system wherein a plurality of bits of data, representing integers 0 through 9, are transformed into a single transmission pulse, wherein the single transmission pulse can have a plurality of different pulse durations, as it is shown in figs. 4, 5, and 9, and as discussed above in claim 1. As to McCorkle reference, remark states one skilled in the art would not be lead to represent bits in base 10 for transmission purposes, as such a representation would appear to be merely wastefull of resources in comparison to using a 2^n base where n is an integer. However limitations such as representing bits in base 10 for transmission purposes, or using a 2^n base are not recited in the rejected claim 58. As to transmitting the time modulated ultrawideband pulse over a guided medium from a transmitter to a receiver, McCorkle teaches the transmission of an ultrawideband pulse signal (col. 5, lines 39-45) representing bits of data (col. 9, lines 61-62) over a guided medium (for example, guided medium 127) from a transmitter (128, fig. 1) to a receiver (col. 12, lines 24-25 and fig. 2A, note that pulse signals are transmitted over guided mediums 125 and 127 from the transmitter 128 to the receiver).

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M. R. Sedighian

M. R. SEDIGHIAN
PRIMARY EXAMINER